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# The weakening of the Atlantic meridional overturning circulation in global warming scenarios and its climatic impacts

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This poster discusses an ensemble of model simulations performed with Climber-3alpha, a climate model of intermediate complexity. The model was forced with different greenhouse gas (GHG) scenarios for the next four centuries. In addition, an extra freshwater flux was applied to some of the ensemble members, mimicking meltwater from the Greenland ice as well as from increased river runoff. It turns out that the Atlantic meridional overturning circulation (AMOC) is rather robust in Climber-3alpha. A shutdown of the AMOC occurs only under strong GHG forcing in conjunction with a large freshwater flux. In other cases the AMOC weakens by 10 to 20% and recovers within 200 to 300 years. A net cooling (with respect to 1989) is observed chiefly in the sea surface temperature fields of the central Nordic Seas. Here, shifts in the location of deep water formation lead to local temperature shifts of several degrees. On land, the effect of a slowed AMOC is to dampen the temperature increase that is due to global warming. The most drastic impact of a weakening AMOC is a sea level rise of up to 50 cm along the coasts of the North Atlantic.